

Application No.: 10/574,175
Reply to Office Action: January 28, 2009

BASIS FOR THE AMENDMENT

The claims have been amended as supported by the claim and specification as originally filed.

No new matter is believed to have been added by entry of this amendment. Entry and favorable reconsideration are respectfully requested.

Upon entry of this amendment Claims 1-20 will now be active in this application.

REMARKS

Applicants respectfully request reconsideration of the application, as amended, in view of the following remarks.

The rejection of Claim 2 is obviated by the amendment of Claim 2.

Furthermore, all inventors designated in this application were employees of the Assignee and under obligation to assign the results of their research to the Assignee at the time the invention was made.

The rejection of Claims 1-20 under 35 U.S.C. § 103(a) over Hung (US 5,866,656), Calder (EP 0 247 426) and McGinniss (US 6,342,563) is respectfully traversed.

The present invention as set forth in **Claim 1** relates to a mixture for preparing a reactive hot melt adhesive comprising from 10 to 80 per cent by weight of a compound comprising at least one free isocyanate group and comprising from 20 to 90 per cent by weight of a polymer comprising at least one hydroxyl group and/or amino group and/or mercapto group and obtained by polymerizing ethylenically unsaturated monomers, **wherein the polymer comprising at least one hydroxyl group and/or amino group and/or mercapto group has a polydispersity D of less than 1.9.**

Hung and Calder fail to disclose or suggest the claimed polydispersity index of less than 1.9. McGinness is cited to provide the polydispersity. However, it is not obvious to combine a component (A) as claimed with component (B) as claimed to obtain a mixture suitable for preparing a hot-melt adhesive.

Further, as shown in the attached Rule 132 Declaration, the polydispersity of less than 1.9 is critical.

The experiments have been performed to show that binders according to the invention with polydispersity indices below 1.9 are unexpectedly superior to the cited prior art. The experiments show that the claimed reactive hot melts are superior regarding handling, storage stability and open time.

The table below is reproduced from the Rule 132 Declaration.

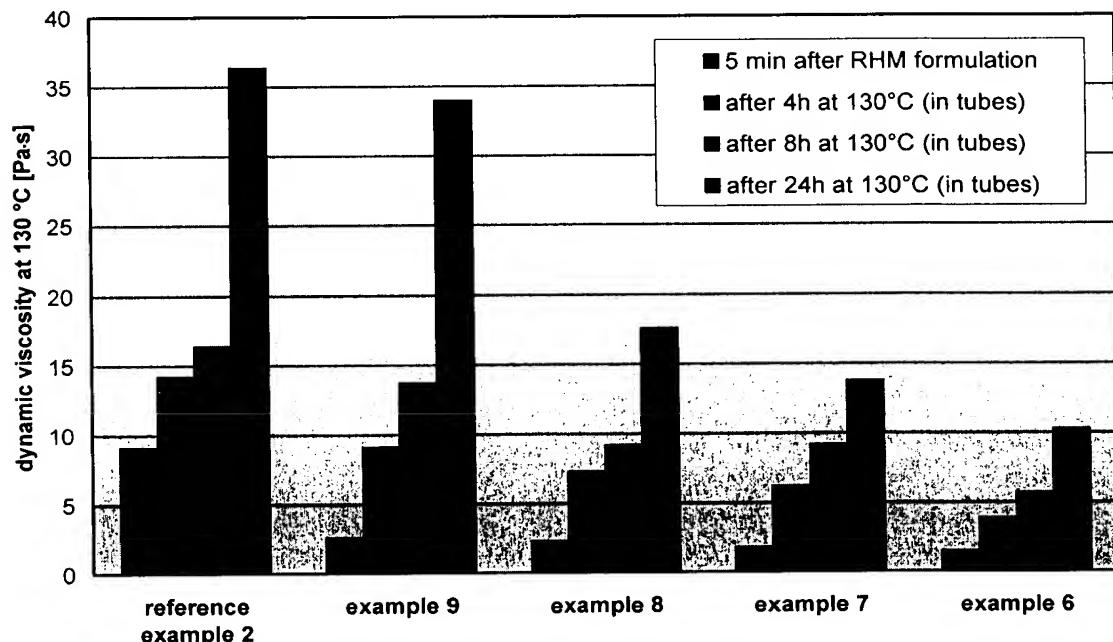
	molecular weight M_n [g/mol]	molecular weight M_w [g/mol]	molecular weight distribution (M_w/M_n)	hydroxyl number [mg KOH/g]
Example1	20200	22200	1.10	11.8
Example2	19700	22000	1.12	9.1
Example3	19100	21700	1.14	6.4
Example4	20100	22700	1.13	15.6
Comparative example 1	18500	37300	2.02	6.1

	methacrylate component	dynamic viscosity after 5 min [Pa*s]	dynamic viscosity after 4 hours [Pa*s]	dynamic viscosity after 8 hours [Pa*s]	dynamic viscosity after 24 hours [Pa*s]
Example 6	Example 3	1.5	3.9	5.7	10.3
Example 7	Example 2	1.8	6.2	9.2	13.8
Example 8	Example 1	2.3	7.3	9.2	17.6
Example 9	Example 4	2.6	9.1	13.7	34.0
Reference example 2	Reference example 1	9.1	14.2	16.4	36.4

The reference sample 1 shows the lowest number average molecular weight of all methacrylic binders in this series. Nevertheless the reactive hot melt based on this sample (reference sample 2) had the highest dynamic viscosity after preparation. Respectively the dynamic melt viscosity after storage of 24 hours was comparable to a binder with about three times more hydroxyl groups (example 5 in formulation of example 9) that was prepared according to the invention. Typically should the melt viscosity depend on the number of polar – e.g. hydroxyl - groups. Surprisingly was the molecular weight effect in this case of more importance.

It is show that the polymers with molecular weight distributions (mwd) below 1.9 were superior to broad distributed binders ($mwd > 1.9$) with identical composition, hxdroxyl number and number average molecular weight. For this reason these novel reactive hot melts

according to the invention are superior to the prior art regarding handling, storage stability and open time.



These surprising and superior results are not disclosed or suggested by Hung (US 5,866,656), Calder (EP 0 247 426) and McGinniss (US 6,342,563), alone or in combination.

Therefore, the rejection of Claims 1-20 under 35 U.S.C. § 103(a) over Hung (US 5,866,656), Calder (EP 0 247 426) and McGinniss (US 6,342,563) is believed to be unsustainable as the present invention is neither anticipated nor obvious and withdrawal of this rejection is respectfully requested.

This application presents allowable subject matter, and the Examiner is kindly requested to pass it to issue. Should the Examiner have any questions regarding the claims or

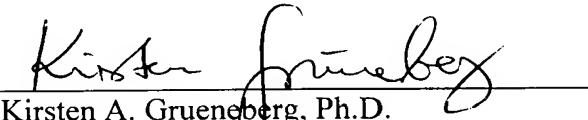
Application No.: 10/574,175

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otherwise wish to discuss this case, he is kindly invited to contact Applicants' below-signed representative, who would be happy to provide any assistance deemed necessary in speeding this application to allowance.

Respectfully submitted,

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(OSMMN 08/07)